Digital Home Theater EF-Series Speaker Systems

NS-777/NS-555/ NS-333/NS-C444

High performance speakers designed for home theater systems.
The EF (Elliptical Form) Series feature Waveguide horns, PMD (Polymer-injected Mica Diaphragm) woofers and highest quality internal Monster Cable wiring for total enjoyment of digital movie sound and music sources, plus elegant Yamaha traditional piano finish cabinets.

EF Speakers Add Elegance as well as Rich, High Clarity Sound to Any Home Theater System

The Beautiful Form Encloses Superior Parts and Technology for Reproducing Pure Digital Sound.

- High sensitivity and wide dynamic range for contemporary digital sources
- Waveguide horn allows the sound field to be shaped and controlled for optimal spatial expression in home theater environments
- PMD (Polymer-injected Mica Diaphragm) cone woofer combines high-performance materials and design for extreme accuracy
- Highest quality internal Monster Cable wiring
- High frequency response dome tweeter delivers clear, natural highs
- Bi-wiring connectivity (NS-777/NS-555)
- Beautiful Yamaha piano finish with elegant elliptical form

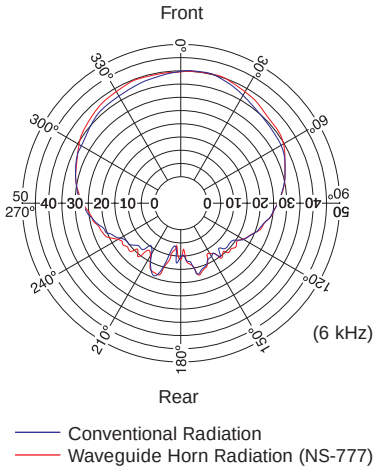
EF Series Has Been Upgraded for Higher Performance!

The PMC (Polymer-injected Mica Diaphragm) Series was a great success, proving popular with consumers and winning awards for excellence around the world. The new EF (Elliprical Form) Series is designed to build on that success, offering even higher performance combined with an elegant Yamaha traditional piano finish cabinet. The woofers, tweeters and cabinets have been refined and improved, and even the wiring has been upgraded, with Monster Cable being used to connect woofer and crossover network. The result is superb audio quality with music sources and the latest 6.1 and 5.1 channel movie soundtracks. It's the latest in home theater speaker design, from the leader in home theater: Yamaha.

Behind EF Series Superiority: the Waveguide Horn

Conventional direct-radiating home speakers have broad directional characteristics that result in a relatively high proportion of reflected sound (you hear a lot of sound that has bounced off walls). Movie theaters, however, are designed to have a highly absorptive acoustic environment so multichannel soundtracks provide a rich sense of spatial expression. To achieve the same effect in the home, therefore, it is necessary to use speakers with a direct/reflected sound ratio quite different from ordinary audio speakers. This is especially true in multi-speaker home theaters, where there would otherwise be lots of reflections. Yamaha accomplished this with the development of the Waveguide Horn, creating the ideal home theater speaker.

Flat High-Frequency Directional Characteristics of the Waveguide Horn



High frequency directional characteristics of an installed Waveguide Horn speaker (red lines) and ordinary (blue lines). The Waveguide Horn speaker shows excellent balance in the front direction, with the surround effect to the sides and rear is not adversely affected by reflected sounds.

Shaping and Controlling the Sound Field

Waveguide Horns differ from conventional speaker horns in that their waveguide features a horizontal control angle of 135° and a vertical control angle of 120°. This allows the sound field to be shaped and controlled for optimal spatial expression in home theater environments. The Waveguide Horn also provides a much smoother frequency response than ordinary horns.

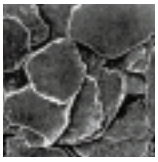
PMD Cone Woofer Makes These Speakers Ideal for Home Theater Sound

Home theater speakers must combine high power capabilities with excellent sensitivity and dynamic range, while being designed to prevent listening fatigue. The new EF Series speakers meet these requirements by using a PMD (Polymer-injected Mica Diaphragm) cone woofer. This diaphragm is composed of 30% high quality white Indian Pearl Mica, chosen for the significant contribution it makes to sound quality. In order to maximize its distinctive qualities, absolutely no coloring is added to the material. We've also varied the cone thickness, making it thicker in the middle, which has been shown to improve performance. The cone is extremely light, yet also tough and durable, with excellent response speed.

Diaphragm Physical Characteristic

	Density (g/cm^3)	Young's Ratio ($x10\ kg^4/cm^2$)	Absorbed Vibration Ratio (tan δ)	Acoustic Velocity (m/sec)
PMD (Polymer-injected Mica Diaphram)	**1.15**	**8.0**	**0.05**	**2,620**
Polypropylene Sheet	0.9	1.5	0.06	1,300
Pulp	0.46	1.6	0.03	1,870

PMD's superior characteristics help ensure outstanding sound quality.
In order to effectively reproduce digital sound, speakers must have the following capabilities: wide dynamic range, high efficiency, sensitive response, and high linearity suspension. The PMD used in the EF Series Speakers plays an important role in providing these capabilities. Its strong points are listed in the chart. Density affects the speed of signal transmission and shows the speakers' excellent linearity. Young's Ratio represents strength, resulting in high efficiency and sensitive response. Absorbed Vibration Ratio is the value of internal loss; the lower this value, the lower the signal loss, so it also contributes to high efficiency and sensitive response. And finally, Acoustic Velocity represents the overall velocity of signal transmission, an important element in reproducing digital sound. With all these properties, PMD is a material perfectly suited to achieving the highest, most natural sound quality. The goal of digital sound composers is sound creation that permits the reproduction of realistic sound, including dialogue and sound effects, and PMD helps make this possible.



Polymer-Injected Mica Microscope Photo

High Quality Monster Cable

Extremely high quality wiring, from the well-known Monster Cable Products, is used internally in each speaker to connect the woofer and crossover network.

High Frequency Response Dome Tweeter

The proven capabilities and durability of this dome tweeter made it the ideal choice for these speakers. It can reproduce frequencies up to 35kHz and is powerful. The diffuser over the tweeter helps improve frequency response and directionality.

Bi-Wiring Connection Capability (NS-777 and NS-555)

Bi-wiring means that instead of connecting the speaker to the amplifier or receiver with two cables (plus and minus), you can use four cables: two for the woofer(s) and two for the tweeter. This decreases modulation distortion for purer sound quality.

Beautiful Yamaha Piano Finish with Elegant Elliptical Form

As one of the world's leading piano manufacturers, Yamaha has a long history of wood-working expertise. The EF Series speaker cabinets feature the same luxurious and environmentally fliendly finish as our fine grand pianos.

Main Specifications	NS-777	NS-555	NS-333	NS-C444
Type	3-way bass-reflex	3-way bass-reflex	2-way bass-reflex	2-way acoustic suspension
Woofers	Dual 20cm (8") PMD cone	Dual 16cm (6-1/4") PMD cone	13cm (5") PMD cone	Dual 13cm (5") PMD cone
Mid-Range Driver	13cm (5") cone with Waveguide horn	13cm (5") cone with Waveguide horn		
Tweeter	2.5cm (1") Aluminum dome with Waveguide horn	2.5cm (1") Aluminum dome with Waveguide horn	2.5cm (1") Aluminum dome with Waveguide horn	2.5cm (1") Aluminum dome with Waveguide horn
Magnetic Shielding	Yes	Yes	Yes	Yes
Highest Quality Internal Monster Cable Wiring	Yes	Yes	Yes	Yes
Bi-Wiring Connectivity	Yes	Yes		
Banana-Plug Compatible Terminals	Yes	Yes	Yes	Yes
Frequency Response	30–35,000 Hz	35–35, 000 Hz	60–35,000 Hz	55–35,000 Hz
Sensitivity	89 dB/0.283 V/1 m	88 dB/0.283 V/1 m	87 dB/0.283 V/1 m	89 dB/0.283 V/1 m
Input Power (Maximum/Nominal)	250 W/100 W	250 W/100 W	150 W/60 W	250 W/100 W
Impedance	6 ohms	6 ohms	6 ohms	6 ohms
Dimensions (W x H x D)	276 x 1,100 x 390 mm 10-7/8" x 43-5/16" x 15-3/8"	222 x 980 x 345 mm 7-1/16" x 13-1/8" x 7-1/4"	200 x 320 x 213 mm 7-7/8" x 12-5/8" x8-3/8"	514 x 190 x 213 mm 20-1/4" x 7-1/2" x 8-3/8"
Weight	24.4 kg; 53.8 lbs.	20 kg; 44.1 lbs.	5.5 kg; 12.1 lbs.	7.3 kg; 16.1 lbs.

For details please contact:

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